

No. 9.—Small bird, with large bill; white under neck and about throat; otherwise black and about same size as a Rail. Bright yellow mark on top of head. There are two of them at present (February 28) on the Island. March 20: Four of these birds seen. (Sacred Kingfisher, *Halcyon sanctus*).

No 10.—About twenty small birds, resembling the description of Wood-Sandpipers, live on the island. The species has black bill, yellowish-brown on face, mottled wings (black, brown and gold), brownish-yellow breast, and black legs. These birds fly about the beach, and apparently live on small shrimps. They were very shy, but latterly have become quite tame. They now hop into the house, and pick up crumbs. (Query.)

Type Descriptions and the International Code

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(Read at the Annual Session, R.A.O.U., Adelaide, 17th October, 1922.)

Ornithology like many other sciences is undergoing evolution. As the years roll by it gains in material and in outlook from observations and researches of men in one field or another, so that as a science it should grow into a more complete and orderly whole. Not the smallest preliminary feature is correct nomenclature, without which everything would be chaotic.

The Strickland Rules of Nomenclature have been the authority in Britain for many years. H. E. Strickland first published his Rules in 1842, a second edition appearing in 1863. These were so practical and workable that the British Association for the Advancement of Science in 1878 instructed a committee to republish the Strickland Rules at the Association's expense.

The International Code of Zoological Nomenclature, after years of preparation by a European committee of prominent men, was finally adopted at Berne in 1904, and is now commonly accepted as the law upon the subject of nomenclature. The Code consists of thirty-six articles intelligently framed, and intended to be complementary one to the other, besides which, for guidance in the interpretation of certain of these articles, many rules and recommendations have been given for its practical application. A standard copy of the Code, English translation, with its original in French and German, should be in the R.A.O.U. Library. It is the Pentateuch of ornithological science and together with it should be filed copies of any pertinent writings or observations thereon that appear from time to time in various parts of the world.

The main object of the Code may be stated in the words of the introduction which were the words of Strickland: "We hope they (the rules) may lead to uniformity of method in future

to rescue science from becoming a mere chaos of words." Undoubtedly the Code is intended to be:—

(a) A consolidation of the various methods of nomenclature hitherto in use.

(b) The "rule of conduct" for the future.

In connection with the former the Code is credited with many decisions which are neither logical nor justifiable. Several of the articles (21-25-26-27) pointedly refer to the past, at the same time presume to offer a rule for judgment of the work of earlier authors.

This is a weak point, since *no enactment of any body should be made retrospective*. The committee had, of course, no legislative powers, but assuming that it fully represented the scientific world at the time, then its deliberations in regard to past work can be taken only as strong recommendations to future workers. As such the Code can be accepted with confidence, for it sets a very high standard, which, if followed, will lead to stability in the much vexed question of nomenclature.

As a "rule of conduct" from that date onward the Code exercises an important influence. It may or may not be possible to rescue nomenclature from chaos, but it certainly is possible to prevent subsequent additions to that chaos. The chaos which sometimes exists in the work of early authors, due no doubt, largely to the inefficiencies of the times, might conceivably be straightened out by applying different methods from those set forth in the Code. It might be *necessary to judge each case on its merits only*.

The faults of the Code, if faults they can properly be called, are errors of omission largely. No arrangement now exists to carry on the work of the committee in conformity with its own appointed plan. The need is for adjustment and provision of interpretation clauses to keep pace with the general advancement of science, besides the all-important comment and recommendation upon the validity of earlier names.

One of the oversights is the all-important question of Type. If the Law of Priority (art. 25) is the "keystone of nomenclature," surely the type on which the name itself rests has an important place in the arch and pillar of the structure. What is type? Article 4 states: "The name of a family is formed by adding an affix to the name of its type genus."

Article 30 opens with the words:—"If the original type of a genus."

Article 29, second paragraph: "If a type were originally established for the said genus." These certainly infer, if they do not affirm, something definite. But the Code does not define What is type genus? or, What is original type?

Perhaps we can gather what was in the mind of the committee framing the Code by perusing some of the articles.

Art. 25. "The valid name of a genus or species can be only that name under which it was first designated on the condition:—

- (a) That this name was published and accompanied by an indication, or a definition, or a description;
- (b) That the author has applied the principles of binary nomenclature."

Art. 21 "The author of a scientific name is that person who first publishes the name in connection with an indication, a definition, or a description . . ."

As a sidelight there are four recommendations published under Article 30—in reference to selecting a type.

These excerpts make it reasonably clear that the Code assumes or intends an original type specimen should be associated with every scientific genus and species (including sub-species), and that the type shall be that specimen (or part of a specimen) first described by the author of its valid name.

We can proceed to the type descriptions and the types themselves, on which obviously the whole structure of nomenclature exists.

Some of the earliest naturalists were navigators or explorers, possibly more intent on discovery of new lands and peoples than they were upon natural history collections, certainly often taken up with attention to food and water and their own daily cares. Their descriptions of bird life were often casual and not at all descriptive unless the author launched into an appreciative sentence of some striking colour or habit. Such descriptions* were not always taken from a particular individual specimen, in fact, there is no evidence that the author ever did more than see the bird in the bush. This is no type description in the modern sense, but nevertheless such description is accepted by the Code on the basis of being an "indication" of type ("indication," according to the dictionary, being "an act of pointing out").

Then came another chapter in Australian ornithology, when men like Quoy and Gaimard, Vigors and Horsfield (1830), left their mark in bequeathing to us descriptions of sterling scientific worth. They did science and themselves the honour of describ-

*Narrative Voy. Capt. Cook, Ellis, 1782, p. 22. "The birds are various though not numerous and some of them very beautiful, particularly a species of parraquet and a small bird of the *motacilla* genus with a bright blue head which we on that account called *motacilla cyanea*." (Adventure Bay, Van Diemen's Land.) This is the familiar "Blue Wren." Journ. Voy. N.S.W., White 1790, p. 257 (Type description of *Acanthiza pusilla*) *Motacilla fusca subtus pallida, cauda prope apicem fascia fusca* (Brown Warbler underneath pale, tail near tip with brown band).

ing their specimens well with colour drawings and types for use of students for all time. True, they made mistakes, but no one can say their type descriptions were not reasonably descriptive, and the species recognisable therefrom.

The pinnacle of perfection was almost reached by John Gould, who, in "Birds of Australia," 1840, set a fine standard of excellence in hand-coloured, often life-size, drawings, and complete descriptions of specimens.

None of these authorities, however, attaches to the type description a number or other sign to identify it with an individual bird-skin, the specimen which should be known to science as the type specimen. Most, but not all, of Gould's types of Australian birds are in U.S.A.

Indication, definition, description: good, better, best are stages of comparative worth. Evidently an "*indication*" was accepted in the Code to include the ancient authors back to Linné (1758), the accepted starting point of scientific nomenclature.

A *definition*, according to the dictionary—"a description of a thing by its characters"—is a better standard which can and should come well within the requirements of the case of being reasonable and recognisable.

A *description* as used in the Code, is something better still. Probably diagnosis is the proper word in translation of the original. The word diagnosis is used twice in the Code (English version), and then only in some recommendations coming under Art. 28, but in each case it is used as an interchangeable term with description, indicating that a description is intended to be something more than a definition.

Gould's work was of that complete nature representing the full meaning of the word diagnosis: —

A complete description or specification to a standard accompanied by measurements and drawing of the type specimen, all of which must be identified together in unmistakable manner.

There is further light thrown upon the matter by some of the recommendations in the Code under Article 28, where the rule is formulated to deal with the union of genera (or species and sub-species), then

(a) "A generic name accompanied by specification of a type has precedence of a name without such specification. If all or none of the genera have types specified, that generic name takes precedence, the *diagnosis** of which is most pertinent."

(b) "A specific name accompanied by both description and figure stands in preference to one accompanied only by a *diagnosis* or only by a figure.

*Diagnosis according to Murray is a distinctive characterisation in precise terms.

It should be clear from this that in such circumstances a "diagnosis" takes precedence over a "definition," and both take precedence over an "indication" †*with no reference to priority*.

If this precedent were in the minds of the framers of the Code applied under Art. 28, why could it not be applied with equal justice under Art. 21? Such a rule would not rob old authorities of any name, and it would obviously force some present-day systematists to bring their work up to, at least, the standard of a "definition."

That there is need for an accurate standard for students is a point that should not require proving. The very object of nomenclature as an introduction to ornithology would be defeated were no standards set to provide reasonable grounds to recognise species and sub-species.

So recently as 1912 in *Novitates Zoologicae*, vol. xviii, p 350, the following purport to be type descriptions of sub-species of certain Australian birds:—

"*Acanthiza uropygialis ruthergleni* subsp. n. differs from *A. u. uropygialis* in its paler rump and basal half of tail, and darker on the flanks and breast. Type: Victoria (Rutherglen)."

"*Acanthiza uropygialis mellori* subsp. n. differs from *A. u. ruthergleni* in its greyer upper coloration, only the head and lower back being greenish. Type: Eyre's Pen., South Australia."

"*Acanthiza uropygialis augusta* subsp. n. differs from *A. u. mellori* in having a lighter back and under tail-coverts. Type: Port Augusta."

"*Acanthiza uropygialis nea* subsp. n. differs from *A. u. mellori* in lacking the green on the head and lower back. Type: West Australia (Burracoppin)."

Numerous other similar instances can be quoted.*

In such so-called type descriptions it appears as if the author has been operating to the lowest standard, an "indication"—if standard it can be called. Not only are such indications confusing, not to say misleading, but they lack the reasonable completeness and the thoroughness of a scientific type description. To be practical, if a ruling were obtained that the Code never intended "an indication" to apply to modern nomenclature, it would possibly *prevent* further unscientific work, and be of greatest assistance to students.

†For further remarks on "indication" see "Science," 5th July, 1907.

*Take, for example, *Geobasileus hedleyi* Mathews, Austral Avian Record, I., p. 78, the type description of which reads:—"Differs from *Acanthiza iredalei morgani* in having a much lighter rump and darker upper surface."

Lastly the value of type specimens cannot be over-estimated, and they should be deposited in national collections.†

"That the R.A.O.U., recognising the value of the International Code of Zoological Nomenclature, Berne, 1904, is of opinion that:

- (a) For new Type Descriptions (see Article 21), the use of a mere "indication" is not the intention of the Code.
- (b) Nothing but a good description of any new genus, species, or sub-species of Australian birds will be acceptable to Australian students.
- (c) That for such Type Descriptions a standard be set to a specified schedule based on descriptions, such as are used in British Museum Catalogues of Birds."

Acanthizae or Thornbills

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In tropical regions of Australia with over 40 inches rainfall per annum *Acanthizae* are not generally found, their place being taken by *Gerygone*, which are closely allied in structure and habit. From 40 to 30 inches mark the most favoured portions of the Continent, many of the highlands and most of the heavily timbered coastal areas of the east being in that position. From 30 to 20 inches represent approximately the temperate portions and more open forest regions of the south-east and south-west as well as the elevated pastoral regions of the east beyond the coastal fringe. While from 20 to 10 inches include the lightly timbered lowlands, most of them extremely flat, and all the wheat belts, subject to periodic drought.

Below 10 inches per annum, rainfall is erratic, and conditions are undoubtedly eremian or desert. The stronghold of *Acanthizae* is in the normal region of 30 to 20 inches, with strong tendency toward the regions of lower rainfall.

This distribution in the main also represents the true range of the *Eucalyptus* forest from heavy to light timber and dwarf varieties.

The close affinity between the fauna and flora of south-eastern and south-western Australia leads to the belief that they were once connected by a direct land belt of somewhat similar conditions; that is, the continent once extended a considerable distance

†See Chapman, "What are Type Specimens," Vic. Nat., vol. xxix. p. 59.